HIV and Your Whole Health

# HIV and Your Liver

The liver is one of the largest and most important organs in the body. It processes almost everything you eat, drink, breathe and absorb through the skin. It provides energy from food, stores nutrients, produces blood proteins, processes many drugs and acts as a filter to remove harmful toxins and waste products. A healthy liver is essential to a healthy life. Fortunately, you can take steps to keep your liver healthy.

Many people with HIV have problems that affect the liver. The most common causes of chronic liver disease are viral hepatitis (hepatitis B and hepatitis C), fatty liver disease and heavy alcohol consumption (see below for more information about specific conditions). Over time, these can lead to liver fibrosis, cirrhosis, liver cancer and the need for a liver transplant. Now that hepatitis B can be prevented with a vaccine and hepatitis C can be easily treated with direct-acting antivirals, fatty liver disease is a growing cause of advanced liver disease worldwide.

HIV can infect liver cells directly, and the virus can cause persistent inflammation—even when viral load is undetectable—that can harm organs throughout the body. Some medications can cause liver damage, including certain HIV meds. However, modern antiretrovirals are generally well tolerated and usually do not cause serious liver problems. Recreational or street drugs, some supplements and herbal remedies and toxic chemicals in the environment can also harm the liver.

Signs of Liver Problems

Regardless of the cause, liver conditions have many of the same symptoms in common, including:

- Fatigue (feeling unusually tired)
- Fever
- Loss of appetite
- Nausea and vomiting
- Upper abdominal pain
- Muscle and joint pain
- Itchiness (pruritus)
- Yellowing of the skin and whites of the eyes (jaundice)

- Dark urine
- Pale-colored stools.

Symptoms may occur during acute hepatitis, that is, soon after acquiring hepatitis A, B, C or E. Hepatitis A and E usually resolve on their own, but hepatitis B and C can case lifelong chronic infection. Many people with early-stage liver problems have no symptoms or mild symptoms that can be mistaken for the flu. Symptoms can worsen as liver damage progresses, but some people never develop severe manifestations.

Increased liver enzyme levels in the blood can be an early sign of trouble. These include ALT (alanine aminotransferase), AST (aspartate aminotransferase), alkaline phosphatase and bilirubin. Elevated ALT and AST are signs of liver inflammation. These liver function tests are usually included in a standard "chem screen" that may be done when you have blood drawn to check your viral load and CD4 count.

Liver Disease Complications

Hepatitis B or C, fatty liver disease, heavy alcohol use, drug toxicity and other causes trigger liver inflammation, which can lead to a buildup of scar tissue known as fibrosis. Over time, this can progress to cirrhosis, hepatocellular carcinoma (the most common type of liver cancer), end-stage liver failure and the need for a liver transplant.

In people with early-stage cirrhosis, the liver still works relatively well. This is known as compensated cirrhosis. Later, when the liver can no longer carry out its vital functions, they may progress to decompensated cirrhosis. People with advanced liver disease can experience a wide range of complications, including:

- Blockage of blood flow through the liver (portal hypertension)
- Abdominal bloating due to fluid accumulation (ascites)
- Swelling, especially in the legs and ankles
- Easy bleeding and bruising
- Blood vessels that resemble spider webs on the skin
- Enlarged blood vessels (varices) in the esophagus and stomach that can cause internal bleeding
- Brain dysfunction and cognitive impairment (hepatic encephalopathy).

Liver biopsies, imaging scans and blood tests are used to diagnose and monitor liver disease progression. A biopsy involves inserting a hollow needle into the abdomen to take a small sample of liver tissue to examine under a microscope. Ultrasound scans and a technique known as transient elastography (FibroScan) can show liver fat accumulation and fibrosis progression.

## HIV Drugs and the Liver

Like many medications, certain antiretroviral drugs can harm the liver, known as hepatotoxicity. Modern antiretrovirals, however, are easier on the liver than some older meds that are no longer widely used.

Liver damage is most likely to occur with drugs that are mainly processed by the liver (others are mainly processed by the kidneys). Some meds can trigger a hypersensitivity or allergic reaction that harms the liver. Older nucleoside reverse transcriptase inhibitors sometimes cause lactic acidosis, liver enlargement and fat buildup (steatosis).

The risk of drug-related liver injury is greatest when drugs are taken at high doses or when multiple medications that affect the liver are taken together. Older individuals, people who drink heavily and people with preexisting liver disease—especially those with advanced cirrhosis—are more prone to drug-induced liver problems.

Your doctor may perform liver function tests when you enter care and before and after starting new meds. Drug-related liver problems are often reversible when the offending drugs are stopped.

## Ways to Protect Your Liver

HIV-positive and HIV-negative people alike can take steps to improve their liver health, and these are especially important for those who already have chronic liver disease.

Start and stay on antiretroviral treatment: Treating HIV keeps the virus in check is a key factor in maintaining good health, including the health of your liver.

Eat a balanced diet: A healthy diet includes fruits and vegetables, whole grains and lean protein. Experts recommend limiting consumption of red meat, processed foods and unhealthy fats. Be aware that poorly washed fruits and vegetables can transmit hepatitis A, and raw or undercooked seafood can carry viruses that harm the liver.

Drink coffee: Numerous studies have shown that drinking coffee—even decaffeinated—may lower the risk of liver problems.

Maintain a healthy weight: Losing weight, if needed, and staying at a healthy weight can improve your overall health, reduce inflammation and lower the risk of fatty liver disease.

Manage metabolic problems: Follow medical advice for keeping blood sugar, cholesterol and triglyceride levels in check and managing diabetes and high blood pressure. If lifestyle changes don’t do the trick, medications may help.

Get plenty of exercise: Experts generally recommend getting at least 150 minutes of moderate aerobic activity or 75 minutes of vigorous aerobic activity each week, along with strength training. This can include everyday activities such as walking and gardening.

Limit consumption of alcohol: Guidelines recommend that men should have no more than two drinks a day and women should have no more than one drink. But many experts think this is still too much and recommend that people with liver disease do not consume alcohol at all.

Avoid recreational drug use: Use of recreational or street drugs can be harmful to your liver. Ask your health care provider for help cutting down or quitting—for example, via medication-assisted treatment for opioid use disorder. If you continue to inject drugs, use a clean needle and other supplies every time.

Stop smoking: Smoking is detrimental to your overall health, and studies show that it increases the risk of liver cancer. Ask your health care provider for advice about quitting.

Be careful with medications, herbs and supplements: Some drugs, such as acetaminophen (Tylenol), can cause liver damage, especially at high doses or when combined with alcohol. Certain vitamins, nutritional supplements and herbal remedies can also harm the liver. In contrast, other herbs, such as milk thistle and licorice root, may be beneficial. Tell your doctor about all prescription and over-the-counter medications, supplements and herbs you are taking.

Avoid environmental toxins: As much as possible, avoid exposure to toxic liquids and fumes, including solvents, paint thinners, and pesticides. If you must work with toxic chemicals, do so in a well-ventilated area, cover your skin and wear gloves and a protective face mask.

Get vaccinated against hepatitis A and B: Vaccination is especially important if you have preexisting liver disease. There is currently no vaccine for hepatitis C.

Get regular medical care: Regular medical monitoring is important for people with liver disease. A number of different tests can show whether liver damage is progressing. People with cirrhosis should be monitored regularly for liver cancer.

Major Liver Conditions

As antiretroviral treatment has extended the lives of people with HIV, liver disease has become a common cause of illness and death in this population. Compared with HIV-negative individuals, people living with HIV are at higher risk for viral hepatitis, fatty liver disease and alcohol-related liver disease.

Hepatitis A and E

Hepatitis A virus (HAV) and hepatitis E virus (HEV) usually spread via food or water contaminated

with feces. Oral-anal sex (rimming) and close contact—for example, living in the same household—can also spread the virus. Hepatitis A outbreaks have been reported among groups with high HIV rates, including people experiencing homelessness and people who inject drugs. Hepatitis E is uncommon in the United States.

Hepatitis A and E cause acute hepatitis, meaning they do not cause chronic infection and long-term complications, such as cirrhosis. They usually resolve on their own without treatment, but in some cases, they can cause severe and even fatal illness (fulminant hepatitis). There are no specific antiviral medications for hepatitis A or E. Usual care involves bed rest, drinking plenty of fluids and over-the-counter medications to manage symptoms.

The Centers for Disease Control and Prevention (CDC) recommends that people living with or at risk for HIV should be vaccinated against hepatitis A and hepatitis B; a combination vaccine is available. There is no approved vaccine for hepatitis E.

See hepmag.com for more information about hepatitis A.

Hepatitis B and D

Hepatitis B virus (HBV), a blood-borne virus, has the same transmission routes as HIV, including shared drug injection equipment, sex and from mothers to babies, though it spreads more easily. Some people have both HBV and HIV, known as coinfection.

Most people who acquire HBV as adults clear the virus naturally without treatment and develop lifelong immunity. However, around 10% will develop chronic infection that lasts longer than six months. In contrast, most exposed babies and young children will develop chronic infection. In some cases, chronic HBV is inactive and does not cause problems, but it can reactivate if immune function declines. Over time, chronic hepatitis B can lead to complications, including cirrhosis and liver cancer. People with HIV/HBV coinfection tend to experience more rapid liver disease progression and more severe complications than those with HBV alone.

Vaccination can prevent hepatitis B. The CDC recommends that infants should receive the hepatitis B vaccine soon after birth, and children, adolescents and adults should get the vaccine if they weren't vaccinated as babies, regardless of risk factors. All people living with HIV should be screened for hepatitis B, as this can affect the choice of HIV treatment.

Hepatitis B can be treated with antiviral medications, including tenofovir disoproxil fumarate (Viread), tenofovir alafenamide (Vemlidy) and entecavir (Baraclude). These drugs stop HBV replication and reduce the risk of complications, but they seldom lead to a cure. Adding pegylated interferon increases the likelihood of a functional cure, but it's still uncommon. Some HIV drugs, including tenofovir disoproxil fumarate (Viread), tenofovir alafenamide (Vemlidy), lamivudine (Epivir) and emtricitabine (Emtriva), are active against both HIV and HBV, and HIV-positive people with hepatitis B should include some of them in their antiretroviral regimen.

Hepatitis D, or delta virus (HDV), is a small defective virus that can replicate only in the presence of HBV. Coinfection with both HBV and HDV typically leads to more rapid and severe liver disease progression compared with HBV alone. Getting vaccinated against HBV prevents hepatitis D as well. There are currently no approved treatments for HDV, but several are in development.

See hepmag.com for more information about hepatitis B.

Hepatitis C

Hepatitis C virus (HCV) is another blood-borne virus that is transmitted in the same ways as HIV, and many people have both viruses. HCV commonly spreads via shared injection drug equipment, but it can also be sexually transmitted, especially among gay and bisexual men, and pass from mother to child.

About a quarter of people clear HCV naturally without treatment, while the rest develop chronic hepatitis C. Chronic infection is more common among people living with HIV. Over years or decades, chronic hepatitis C can lead to serious complications, including cirrhosis and liver cancer. People with HIV/HCV coinfection tend to experience more rapid liver disease progression and more severe complications.

The CDC recommends that all adults should be screened for HCV at least once, regardless of risk factors, and women should be tested during each pregnancy. There is no vaccine for hepatitis C, and infection does not confer lifelong immunity, so people who recover can get the virus again.

If a person tests positive for HCV antibodies, they need a second HCV RNA (viral load) test to determine whether they have active infection and need treatment. Hepatitis C can now be treated with direct-acting antivirals (DAAs), avoiding the need for poorly tolerated pegylated interferon and ribavirin. Modern DAA regimens, such as sofosbuvir/velpatasvir (Epclusa) and glecaprevir/pibrentasvir (Mavyret), are taken for eight to 12 weeks. HCV genotype testing is no longer necessary if people use one of these “pangenotypic” regimens. The drugs are well tolerated and cure more than 95% of treated patients. People with HIV/HCV coinfection can be successfully treated for both viruses.

Successful hepatitis C treatment halts fibrosis progression and may lead to an improvement in liver function. However, if liver disease has already progressed to cirrhosis, the damage may not be fully reversible. This is why it’s important to get screened for HCV and start treatment at an early stage.

See hepmag.com for more information about hepatitis C.

Fatty Liver Disease

Metabolic dysfunction-associated steatotic liver disease (MASLD) is common among HIV-positive and HIV-negative people alike, affecting around one third of the U.S. population. MASLD and its

more severe form, metabolic dysfunction-associated steatohepatitis (MASH), are leading causes of advanced liver disease worldwide. (Before new terminology was adopted in 2023, these were known as NAFLD and NASH.)

Often associated with obesity and diabetes, fatty liver disease is increasingly recognized as a metabolic condition. The buildup of fat in the liver triggers inflammation, which over time can lead to fibrosis, cirrhosis and liver cancer.

Extensive research is underway to develop new treatments for MASLD and MASH. There are now two approved MASH medications, resmetirom (Rezdiffra) and the GLP-1 agonist semaglutide (Wegovy), but management largely relies on lifestyle changes such as weight loss, diet and exercise.

See hepmag.com for more information about fatty liver disease.

Alcohol-Related Liver Disease

Studies have shown that people with HIV are more likely to drink heavily and have a higher rate of alcohol use disorder compared with the general population. The liver processes alcohol, and heavy exposure can cause liver damage. Over time, heavy alcohol consumption can lead to fat buildup in the liver, fibrosis, cirrhosis and liver cancer, and it is a leading indication for liver transplants. The mainstay of treatment for alcohol-related liver disease is abstinence from alcohol. This halts liver injury, and with time, may improve existing damage.

See hepmag.com for more information about alcohol-related liver disease.

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